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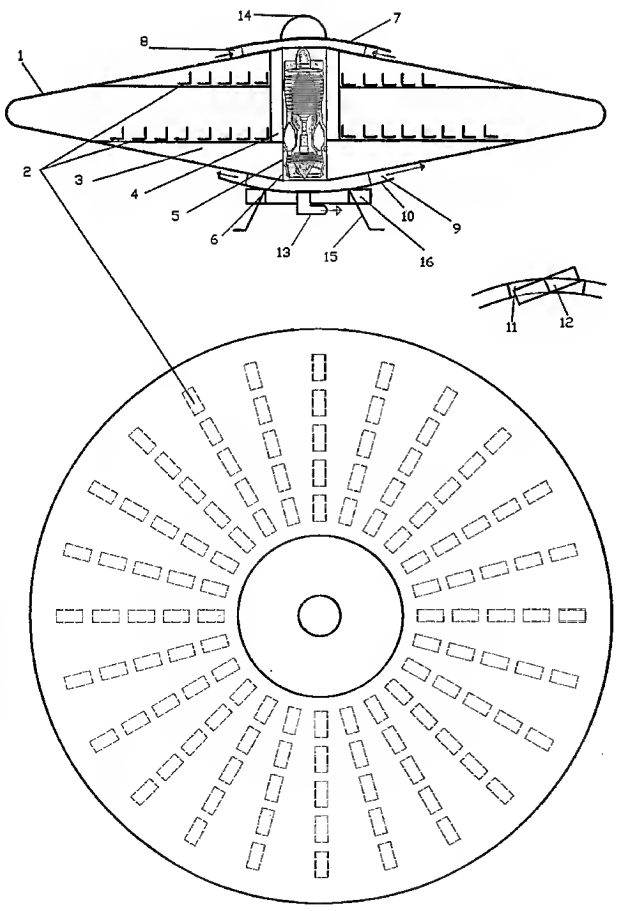
(54) Title: INVERTED AIR FLOW FLYING SAUCERS



(57) Abstract: This patent proposes new configurations for flying crafts in the form of flying saucers, and new methods for generating lift forces through the inverted air flow, as it is sucked by the jet engine (5), over the flying saucer surface (1), over circular wings mounted above the saucer, and/ or over a set of radial wings mounted over the saucer top. The lift force generated by this inverted air flow will be augmented due to the high pressure created by the exhaust gases flow over the lower surface of the flying saucer or through a lower set of radial wings. Aerodynamic controls can be provided through gates controlling the area of the annular air passage (8) to the jet engine, or through varying the radial wings angle of incidence, thus providing for pitching and rolling control. In addition, the jet engine nozzle (13) can be made to swivel through an adequate angle to provide for yawing control.

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INVERTED AIR FLOW FLYING SAUCERS

Technical Field

This patent proposes new configurations for flying crafts in the form of saucers, new methods for generating the lift force through inverted air flow, and new methods for controlling the flying craft.

Background Art

Existing flying crafts, airplanes and helicopters consist of a fuselage for accommodating the passengers, fixed or rotary wings for generating the lift force, and ailerons, rudders and elevators for aerodynamic control. This design has been the traditional one since man has learned to fly. No wonder it was so, since it copied the design of the birds flying in the Earth Atmosphere. This design has several limitations and drawbacks, and ought to be replaced by something radically different and more reliable, compact and efficient. In the Space Age, one has to copy the configurations of the galaxies; not the birds!

Disclosure of the Invention

This patent proposes a new configuration for flying crafts in the shape of a surface of revolution generated by the revolution of a rounded corner triangle, or generally a polygon, or an ellipse about the vertical Z axis. The craft body will them resemble two saucers one inverted on top of the other, 1, FIG. 1. The craft body will accommodate the passengers in circular rows of seats facing the outside rim of the craft, 2, FIG. 1; their luggage, 3, FIG. 1; and the fuel tanks, 4, FIG. 1.

The lift force is generated on the fixed and rotary wings of the currently used aircrafts *by the motion of the wings through still air.*

The new method proposed here for generating the lift force depends, on the contrary, on *the inverted flow of air over still surfaces- like in wind tunnels.*

Installing the jet engine, 5, FIG. 1, whether it is a turbojet or a turbofan, vertically in duct, 6, FIG. 1, and capping the vertical air inlet by surface, 7, FIG. 1, leaving only a small annular area, 8, FIG. 1, for the passage of the air to the engine, will force the air, sucked by the jet engine, to flow over the entire upper surface of the craft and a depression of pressure will result over this surface with respect to the free stream pressure, with a distribution similar to curve 1, FIG. 2.

On the lower surface of the craft, some of the high pressure exhaust gases will be allowed to flow over it through the annular area, 9, FIG. 1, formed between the cap surface.

10, FIG. 1, and the lower surface of the craft body. This will create high pressure distribution on the lower surface of the craft similar to that shown by curve 2, FIG. 2.

The difference between the pressure values on the lower and higher surfaces of the craft will generate the lift force carrying the craft.

An additional lift force will be generated on the craft during its flight in the traditional way, that is due to its motion in still air as with the currently used fixed wings aircrafts.

As for controls, the annular zone of air passage, 8, FIG. 1, can be divided into several ports, 11, FIG. 1, each controlled by a rotary gate, 12, FIG. 1, varying the air flow over the corresponding zone of the craft upper surface, and consequently varying the aerodynamic forces and moments over this zone, resulting in a pitching or rolling action, or generally tilting the craft about any axis in the horizontal XY plane. Such controls can also be provided for the lower surface.

For the yawing control, the exhaust nozzle, 13, FIG. 1, can be made to swivel through an adequate angle. Such simple controls will replace the currently used ailerons, elevators and rudders.

The cockpit, 14, FIG. 1, will be placed on the top of the upper capping surface, far away and unreachable from the passengers area; thus making the hijacking of the flying saucer impossible!

The landing gear will consist of 3 or 4 legs provided with springs and shock absorbers, 15, FIG. 1, and / or floats, 16, FIG. 1.

A second method for generating lift force by inverted air flow is to mount a circular wing, 1, FIG. 3, over the upper surface of the flying saucer, in such a manner as to force the air sucked by the engine to flow past it to create a lift force over it, that is in addition to the lift force generated by the air flow over the craft upper surface and by the exhaust gases flow over the craft lower surface mentioned above.

A second circular wing, 2, FIG. 3, can be added to increase the lift force still more if needed; reminiscent of the old biplanes.

A third method for generating lift by inverted air flow is to use wings mounted in a radial manner, 1, FIG. 4, between the cap, 2, FIG. 4, and a huge circular ring, 3, FIG. 4, resembling huge diffusion fixed vanes supported from both sides. Here the air sucked by the jet engine will be forced to flow past these radial wings oriented in a suitable angle of incidence, and thus a lift force will be generated over them.

A similar arrangement can be made on the craft lower surface with the exhaust gases flowing here over the radial wings, 4, FIG. 4.

During flight, if no extra lift is needed, these radial wings can be closed completely, and all exhaust gases will then be directed through the nozzle to give more thrust and higher forward speed.

Aerodynamic control is effected here by tilting the radial wings through a suitable angle, 5, FIG. 4, thus changing the aerodynamic forces and moments and tilting the flying saucer accordingly.

The advantage of the proposed flying saucer configurations and the lift generating methods through the use of inverted air flow are numerous as will be elaborated below.

Brief Description of the Drawings

FIG. 1- Main Parts of the Flying Saucer

1. Outer surface of the flying saucer.
2. Passengers seats.
3. Luggage area.
4. Fuel tanks.
5. Jet engine.
6. Engine duct.
7. Upper cap.
8. Upper annular air passage.
9. Lower annular air passage.
10. Lower cap.
11. Air passage port.
12. Rotating controlling gate.
13. Engine exhaust swiveling nozzle.
14. Cockpit.
15. Landing gear.
16. Floats.

FIG. 2 – Pressure Distribution over the Flying Saucer Upper and Lower Surfaces

1. Pressure distribution over the upper surface.
2. Pressure distribution over the lower surface.

FIG. 3 – Circular Wings

1. A circular wing.
2. A second circular wing.

FIG. 4 – Radial Wings

1. Radial wings.

2. Cap.
3. Circular ring.
4. Lower set of radial wings.
5. Tilting the wings to change aerodynamic forces and moments for controlling the flying saucer.

Best Mode for Carrying Out the Invention

Flying saucers can be built as elaborated above using surfaces of revolution generated by rotating a rounded corner triangle or generally any suitable polygon, or an ellipse about the vertical Z axis, with a duct in the center to accommodate a turbojet or a turbofan jet engine. The flow of air along the saucer upper surface during its path to the engine air intake will generate a depression in pressure over this surface and the flow of exhaust gases over the saucer lower surface will generate high pressure over it, and thus a lift force will be generated on the flying saucer. In addition, circular wings can be fitted in the path of air intake creating additional lift force. In alternative, a set of radial wings, like huge vanes, can be mounted on top of the saucer to generate lift force. Another set of radial wings can be mounted on the lower surface of the saucer in the path of the engine exhaust gases to generate extra lift force. In addition to all these kinds of lift forces, lift will be generated also in the traditional way, as on the wings of the currently used aircrafts, due to the flow over the flying saucer as it moves through the air. Aerodynamic controls can be effected as indicated above through ports and gates or through rotating the radial wings.

Industrial Applicability

The ideas proposed here can be used to manufacture new flying saucers that will have many advantages over the currently manufactured airplanes and helicopters. The advantages of the flying saucers manufactured as outlined above, which make use of the inverted airflow and exhaust gases flow, are numerous: enhanced lift force resulting form the inverted air flow and the flow of exhaust gases past the upper and lower surfaces of the flying saucer respectively (FIG. 1), or past circular wings mounted on top in the path of the air sucked by the jet engine (FIG.3), or past the radial wings mounted on top and bottom of the saucer (FIG. 4). The aerodynamic controls of the craft are simple and more efficient and reliable compared with the currently used ones: either through ports and rotating gates, or through rotating the radial wings, thus changing their angle of incidence. The result is that we get flying saucers extremely stable in flight, with exceptional maneuvering ability about any axis and with high structural integrity. The flying saucers are also more efficient in loading passengers and take off and land vertically.

CLAIMS

1. The subject matter of the present patent concerns new configurations for flying crafts in the form of flying saucers and new methods for generating lift force through the inverted air flow over the flying saucer upper surface, and /or over circular wings mounted on top of the saucer, and / or over a set of radial wings mounted on top of the saucer. It concerns also new methods for generating lift through the flow of the jet engine exhaust gases over the flying saucer lower surface, and/or over circular wings mounted on bottom of the saucer, and/or over a set of radial wings mounted on bottom of the flying saucer. Aerodynamic controls can be provided through gates controlling the area of the annular air passage to the engine, or through varying the radial wings angle of incidence.
2. In accordance with what is indicated in item 1 above, the flying saucer is capped from the top and bottom leaving only annular passages for the air inlet and exhaust gases exit. Air flow over the saucer upper surface will create pressure depression, and exhaust gases flow over the saucer lower surface will cause high pressure on it relative to the free stream pressure. This will generate a lift force on the saucer.
3. In accordance with what is indicated in item 1 above, circular wings can be mounted above the saucer upper surface. Air flow past this wing from all parts, as it is sucked by the engine, will result in a lift force over it. More than one wing can be mounted to enhance the lift force.
4. In accordance with what is indicated in item 1 above, a set of radial wings can be mounted on top of the saucer, thus forcing the air to flow through these wings in its way to the engine intake, producing lift forces on such wings. A similar set of wings can be fitted on the lower part of the saucer in the path of the exhaust gases flow.
5. In accordance with what is indicated in items 1&2 above, aerodynamic control of the saucer can be effected by dividing the annular air passage in item 2 above into separate ports each provided by rotating or sliding gates to control air flow, thus varying the aerodynamic forces and moments on a certain portion of the saucer and consequently tilting it in the desired direction.
6. In accordance with what is indicated in items 1& 4 above, the radial wings can be rotated in a certain degree, thus varying the wings angle of incidence, and consequently the aerodynamic forces and moments, thus tilting the saucer in the desired direction.

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FIG.1

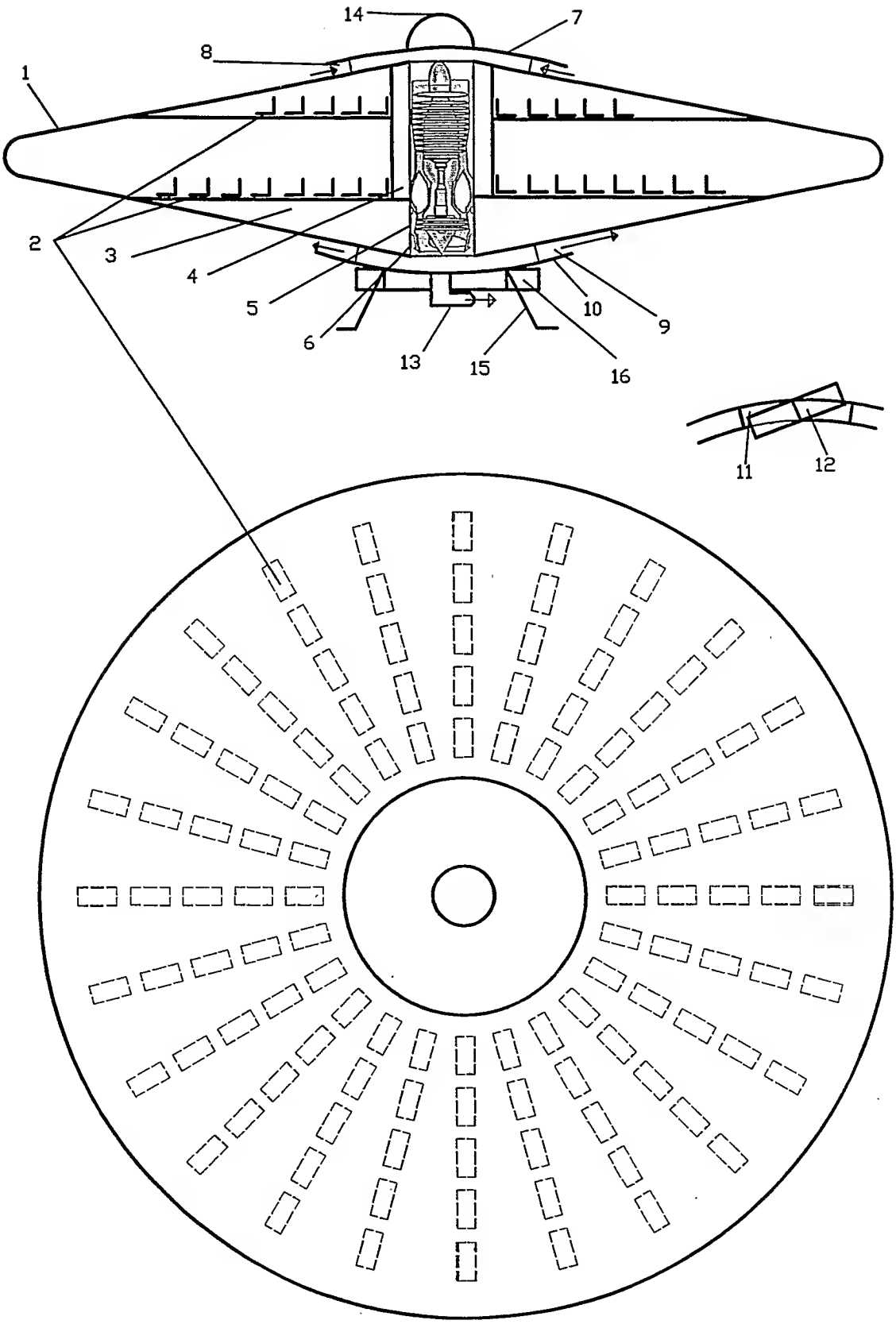

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FIG.2

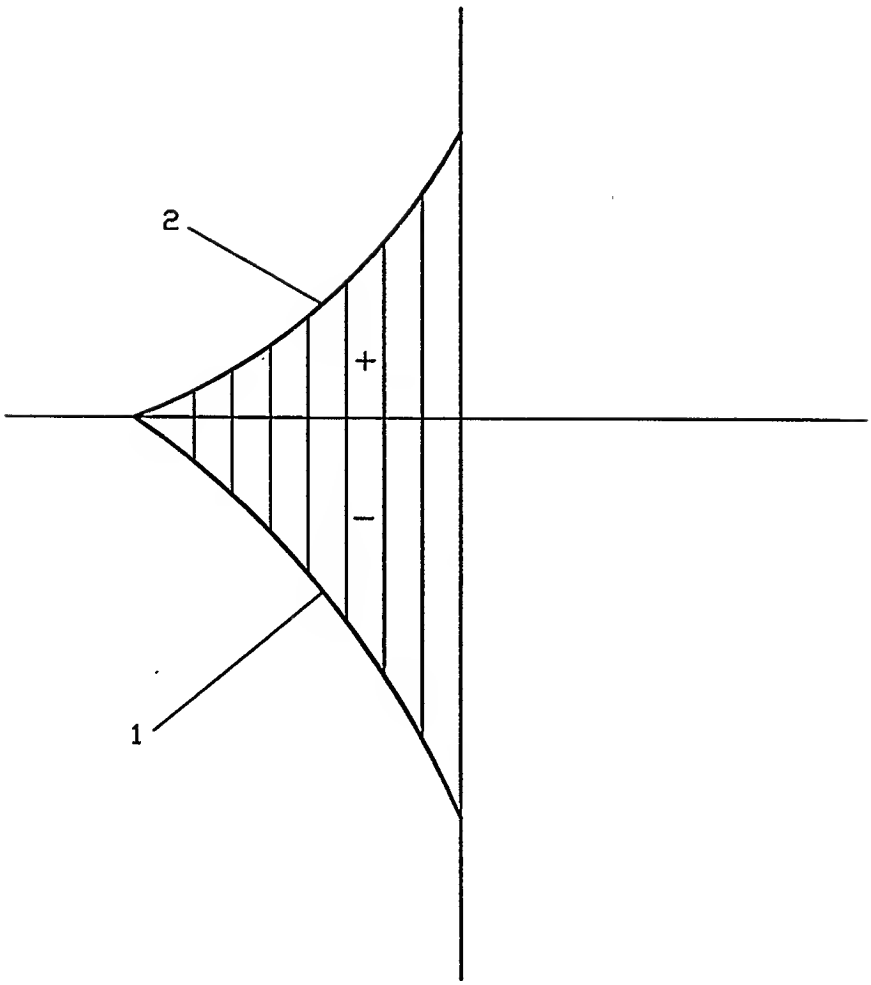

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FIG.3

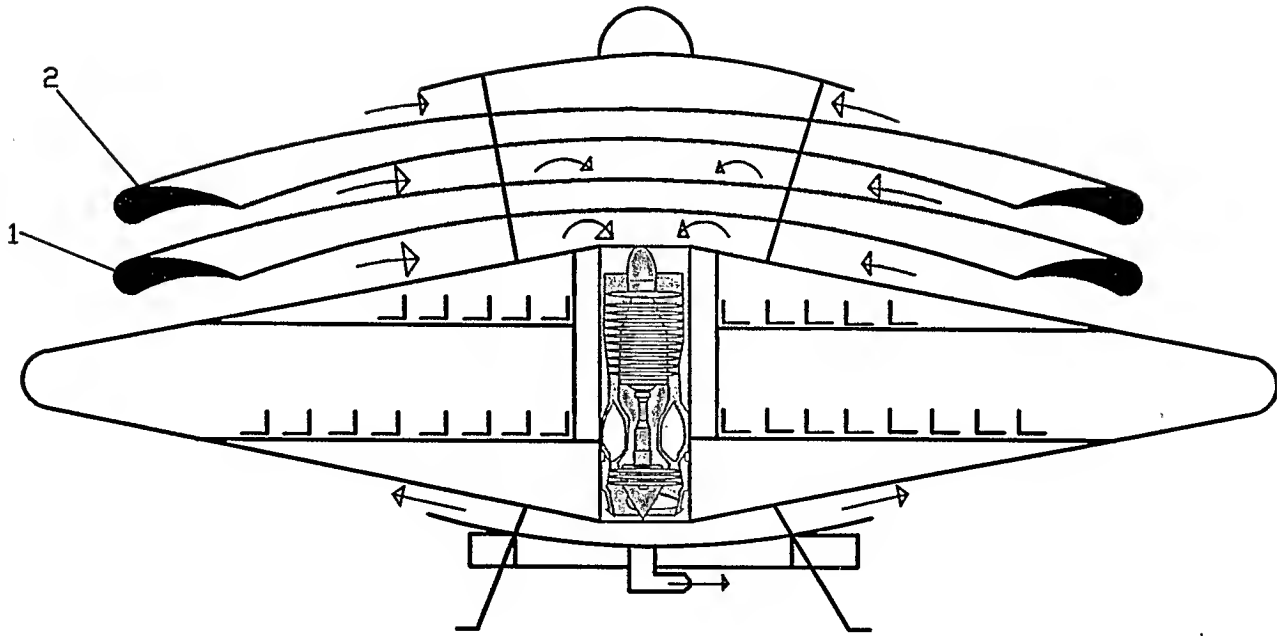

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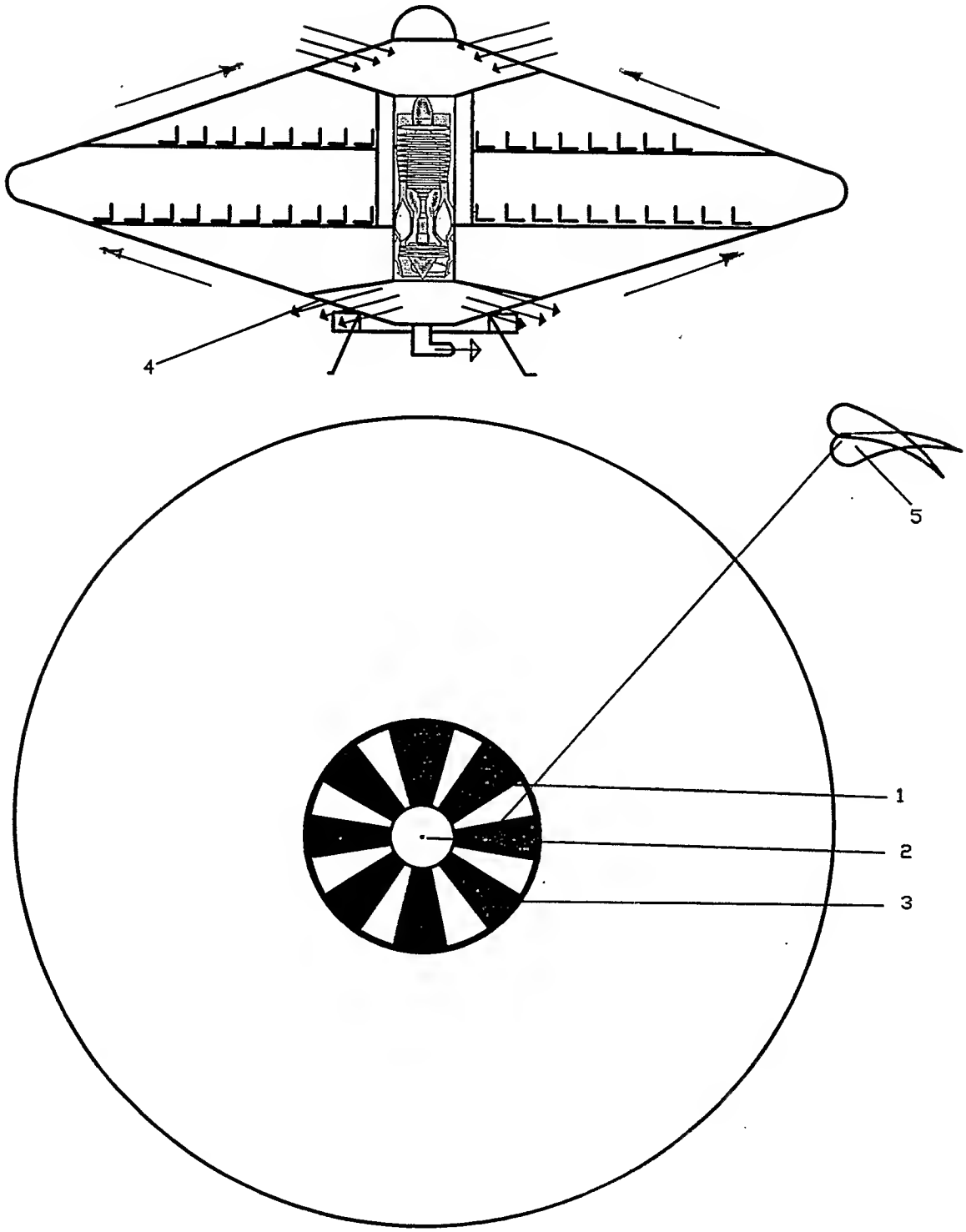
FIG.4



INTERNATIONAL SEARCH REPORT

International application No.
PCT/EG 2004/000044

A. CLASSIFICATION OF SUBJECT MATTER
IPC[7]: B64C 29/00, B64C 39/10
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC[7]: B64C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPODOC, WPI, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003/0127559 A1 (WALMSLEY) 10 July 2003 (10.07.2003) *the whole document.* --	1-6
A	EP 0534611 A1 (A.H. BECK FOUNDATION CO.) 31 March 1993 (31.03.1993) *the whole document.* --	1-6
A	DE 4000344 A1 (TEINZER HARALD) 11 July 1991 (11.07.1991) *fig. 2, claims 1-11.* ----	1-6

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/EG 2004/000044

Patent document cited in search report			Publication date	Patent family member(s)			Publication date
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EP	A	534611		EP	A1	0534611	1993-03-31
				US	A	5170963	1992-12-15
US	A	20030127559				none	